

47  
-52-**WE CLAIM:**

1. A chemical conjugate for treating a nerve cell related disorder, comprising:  
an inactive Clostridial neurotoxin having specificity for a target nerve cell;  
a drug or other bioactive molecule attached to said neurotoxin, wherein said  
neurotoxin retains its ability to enter said target nerve cell.
2. The chemical conjugate of Claim 1, wherein said Clostridial neurotoxin is  
selected from the group consisting of: tetanus toxin, botulinum toxin A, botulinum toxin B,  
botulinum toxin C, botulinum toxin D, botulinum toxin E, botulinum toxin F and botulinum  
toxin G.
3. The chemical conjugate of Claim 1, wherein said Clostridial neurotoxin has  
been inactivated by an amino acid change in its light chain.
4. The chemical conjugate of Claim 3, wherein said inactivated Clostridial  
neurotoxin is tetanus toxin having a modification of Glu<sup>234</sup>, a botulinum toxin A having a  
modification at His<sup>227</sup> and/or Glu<sup>224</sup>, or a botulinum toxin other than botulinum toxin A having  
a modification at a site corresponding to His<sup>227</sup> and/or Glu<sup>224</sup> of botulinum toxin A.
5. The chemical conjugate of any of the foregoing claims for use in the treatment  
of a neuromuscular dysfunction in a mammal.
6. The chemical conjugate of Claim 5, for use in the treatment of a  
neuromuscular dysfunction relating to uncontrollable muscle spasms.
7. Use of the chemical conjugate of any of Claims 1-4 in the preparation of a  
medicament for treatment of a neuromuscular dysfunction in a mammal.
8. The use of Claim 7, wherein said neuromuscular dysfunction relates to  
uncontrollable muscle spasms.
9. The chemical conjugate of any one of Claims 1-4, wherein said drug is an  
active ingredient for treatment of botulism or tetanus.
10. The chemical conjugate of Claim 9, for use in the treatment of botulism or  
tetanus.
11. Use of the chemical conjugate of Claim 9 in the preparation of a medicament  
for treatment of botulism or tetanus in a mammal.
12. Use of an inactive Clostridial neurotoxin in the preparation of a medicament  
for treatment of acute botulinum toxin poisoning.
13. The use of Claim 12, wherein the Clostridial neurotoxin is used without  
conjugation to another drug.

48  
-53-

14. Use of chemical conjugate comprising an active clostridial neurotoxin and a drug in the preparation of a medicament for treatment of focal dystonias, spasticities due to stroke or traumatic brain or spinal cord injury, blepharospasm, strabismus, cerebral palsy or back pain due to muscle spasms.

5 15. A method of treating a neuromuscular dysfunction in a mammal, comprising:  
preparing a pharmaceutically active solution, wherein said solution comprises  
a Clostridial neurotoxin linked to a drug; and  
introducing an effective quantity of said pharmaceutically active solution into  
a mammal.

10 16. The method of Claim 15, wherein said Clostridial neurotoxin is selected from  
the group consisting of: tetanus toxin, botulinum toxin A, botulinum toxin B, botulinum toxin  
C, botulinum toxin D, botulinum toxin E, botulinum toxin F and botulinum toxin G.

17. The method of Claim 15, wherein said Clostridial neurotoxin has been  
inactivated by an amino acid change in its light chain.

15 18. The method of Claim 15, wherein said drug inhibits neurotransmitter release.

19. The method of Claim 18, wherein said drug inhibits the activity of  
synaptobrevin.

20. The method of Claim 15, wherein said neuromuscular dysfunction relates to  
uncontrollable muscle spasms.

08750101 2050197